

X-ray Means for Determining a Location of a Malignant Neoplasm and its Radiotherapy

Abstracts

In the first stage of a method of radiotherapy a location of a malignant neoplasm, emerged from the preceding diagnostics, is determined, for which purpose the part (7) of the patient's body (5), including the said neoplasm, is scanned. Scanning is carried out by moving a zone (4) of a radiation concentrating, formed by crossing of several X-ray beams. The information about a density of tissues is obtained by means of the detectors (6), a secondary radiation emerging in the concentrating zone (4) is transported to. In the second stage scanning is carried out by means of the same means as in the first stage, moving the concentrating zone in limits of the malignant neoplasm, determined in the first stage. Thus the X-ray sources (1) by means of a means of controlling (9) are reset to the regime of increased intensity, being sufficient for ray injury of the tissues of the malignant neoplasm. To deliver a radiation of the sources to the concentration zone and a secondary radiation to the detectors various combinations of the collimators, X-ray lenses (2, 3) and half lenses, forming together with the sources and detectors an X-ray optical system (8), are used. When the concentration zone is being scanned the X-ray optical system (8) as a whole and the patient's body (5) moves respectively (10a, 10b). The coordinate sensors (11), fixing the said moving, and the detectors (6) are connected with their outputs up to the means (12) of data processing and imaging. The usage of the said principle of obtaining the information about the density of biological tissues and common means for X-ray beams forming in both stages improves an accuracy of measuring and ray affect and decreases an irradiation doze of healthy tissues.

3 independent and 24 dependent claims, 11 figures.